Curriculum Vitae

Satyam Dubey

Master of Science (MS) in Data Science

satyamdubey5302@gmail.com linkedin.com/in/dsatyam09 github.com/dsatyam09 +91-9867928185

Education

Vivekanand Education Society's Institute of Technology, Mumbai **2020 – 2024**
Bachelor of Engineering (BE) in Artificial Intelligence and Data Science *GPA: 3.7/4*
Project: SecureGAN: Facial Data Inpainting for Security Applications Mentor: Dr. Anjali Yeole

Experience

Jio Institute, Mumbai **July 2024 - Present**
Research Assistant *Mentor: Dr. Sudipta Roy*

- Developing a self-supervised model for early detection of Non-Alcoholic Fatty Liver Disease from ultrasound scans.
- Utilizing ResNet-18 bottleneck, Eco-Texture features, and spatial attention mechanisms for fat localization.
- Using federated learning to ensure privacy and Explainability techniques to enhance model insights.
- Collaborating with radiologists to refine the model with weekly feedback from live deployment in government hospitals.

K. J. Somaiya College of Engineering, Mumbai **Aug 2023 – June 2024**
Research Intern *Mentor: Dr. Jagannath Nirmal*

- Developed a wavelet-based multi-resolution analysis framework for crown-of-thorns starfish (COTs) detection, achieving 95% classification accuracy, surpassing prior methods by 2.5%.
- Published findings in *IMTS Springer Journal*, showcasing advancements in integrating GLCM-based texture analysis with the second-order statistical feature extraction.

Ernst & Young (EY) **June 2023 – Aug 2023**
Software Development Intern *Manager: Ms. Nidhi Kumari*

- Built the backend for a Speech-to-Text POC, incorporating speaker diarization on Google Cloud Platform to enable accurate agent profiling.
- Applied Zero-Shot learning to enhance Risk Control Matrix (RCM) management, comparing models for better compliance and banking insights.

Indian Statistical Institute, Kolkata **May 2022 – July 2022**
Research Intern (Biomedical Imaging and Bioinformatics Lab) *Mentor: Dr. Pradipta Maji*

- Developed advanced color normalization techniques for H&E stained images, utilizing RGB, HSI, and $L\alpha\beta$ models.
- Incorporated Gaussian Mixture Models to reduce noise and applied non-linear normalization to enhance image quality.
- Utilized the Akaike Information Criterion (AIC) to confirm HSI as the optimal color channel for enhancing the breast cancer cell detection accuracy.

Publications

- **Satyam Dubey** and Jagannath Nirmal, "Beyond Texture: Unveiling Spiny Crown-of-Thorns Starfish with Multiresolution Analysis", *Journal of Intelligent Marine Technology and Systems, Springer*, vol. 2, no. 1, pp. 16, 2024.
- Anjali Yeole, Prathmesh Pawar, **Satyam Dubey**, Yash Sarang, Arunim Chakraborty, "Image Inpainting for Missing Facial Data Recovery in Security Settings", *Journal of Electrical Systems*, vol. 20, no. 3, pp. 3165–3171, 2024.

Skills Summary

- **Languages**: Python, C/C++, JavaScript, LaTeX
- **Frameworks**: PyTorch, Keras, Scikit-Learn, Transformers, NLTK, Gym, Langchain, Gradio, Flask, PySpark, MLflow
- **MLOps**: Jenkins, Docker, AWS (EC2, SageMaker, Lambda, S3), Firebase, Pinecone, MongoDB, Git, Kafka

Achievements

- Winner of hackathon *WELDRIGHT*, conducted by IIT-Bombay and Godrej Aerospace, 2022.
- Finalist (Top-4) in Hackathon *Cashflow*, conducted by IIT-Bombay and Edelweiss Group, 2023.
- Winner in *HACK-AI-THON 2.0* in the Elastic Search track, conducted by AI CoLegion and Elastics, 2024.
- Awarded the *Indian Academy of Sciences* (IASc-INSA-NASI) Summer Research Fellowship, 2022.
- Captained the department soccer team to victory in Intercollege Soccer Competition, in 2022, and runners-up in 2023.

Projects

Docspot | *Elastic Search, MongoDB, FAISS, Langchain, React JS, Flask* **Mar 2024**

- Developed a platform for students to access free study materials through community donations, integrating a RAG-based system for efficient document retrieval and interactive chat functionality.
- Integrated a notes summarization feature using Hugging Face's 'google-t5/t5-small' model, improving content accessibility and comprehension.
- Used Elastic Search to optimize document retrieval, reducing search time from 10 seconds to under 4 seconds, resulting in a 60% improvement in speed and a smoother user experience.

Connect-4 Reinforcement Learning AI | *Python* **May 2024**

- Developed an AI for Connect-4 using Q-Learning and Deep Q-Network (DQN), training it to maximize winning potential through epsilon-greedy policy and reward-based learning.
- Implemented customizable training mode, using experience replay and state-action value updates to refine AI strategy and enhance decision-making.

SecureGans | *Python* **2023-24**

- Developed a high-resolution face image completion model using GANs and 2-way ensemble U-Net architecture to recover facial features obscured by masks, improving facial recognition accuracy.
- Achieved a PSNR of 22.25 and SSIM of 0.874, surpassing conventional GANs and non-learning-based methods, enhancing security and authentication in masked environments.

Smart University Recommender | *Neo4j, DistilBERT, Python, Flask, React.js, Docker, AWS* **Nov 2023**

- Developed a recommendation system using Neo4j to construct an interest graph capturing user connections, evolving interests, and academic trends, boosting recommendation accuracy by 25% with fine-tuned DistilBERT models.
- Implemented advanced querying with Neo4j and DistilBERT to provide personalized university suggestions and identify top universities within specific fields.
- Deployed the scalable solution on AWS, utilizing Docker for containerization and React.js for an intuitive web interface to visualize university recommendations and academic patterns.

Position of Responsibility

Jio Institute, Mumbai **Nov 2024 - Present**

Teaching Assistant *Mentor: Dr. Sudipta Roy*

- Conducting lab sessions for 56 students, teaching deep learning concepts through hands-on practicals.
- Assisted students in debugging complex DL models when they encountered issues during assignment implementations.

Child Vision Foundation, Chembur **Aug 2022 - Oct 2022**

Group Lead *Manager: Mr. Abhinav Kumar*

- Effectively led a team of 16 individuals at C.V.F, resulting in the successful organization of a distribution camp for beneficiaries in the Ghatkopar and Kurla regions.
- Led surveys in Kurla, Thane, Airoli, Bhandup, and Chembur regions, gathering crucial data into the needs of physically disabled individuals for targeted support and assistance.

Relevant Coursework

- Machine Learning
- Deep Learning I
- Deep Learning II
- Statistics
- Natural Language Processing
- Computer Vision
- Reinforcement Learning
- Recommendation System
- Big Data Technologies